

PROCEEDINGS  
OF THE  
AMERICAN PHILOSOPHICAL SOCIETY  
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FOR PROMOTING USEFUL KNOWLEDGE

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*General Meeting, April 7, 8 and 9, 1904.*

APRIL 7.—MORNING SESSION, 10 A.M.

President SMITH in the Chair.

The President opened the General Meeting with a brief Address of Welcome.

A letter was received from the Committee of Organization of the Fourteenth International Congress of Americanists, to be held in Stuttgart, August 18 to 23, 1904, inviting the Society to be represented at the Congress by a delegate; and

Also from the International Zoological Congress, to be held at Berne, August 14 to 19, 1904, inviting the Society to be represented by delegates at the Congress.

On motion, the President was requested to appoint delegates to these Congresses.

From the President of the American Academy of Political and Social Science, inviting the members to attend the sessions of the Academy on April 8 and 9.

The following papers were read:

"Dimethyl Racemic Acid, Its Synthesis and Derivatives," by Prof. H. F. Keller, of Philadelphia. Discussed by Prof. George F. Barker.

"The Rôle of Carbon," by Prof. Albert B. Prescott, of Ann Arbor, Mich.

"Sources of Error in the Determination of the Atomic Weight of Nitrogen," by Prof. Theodore W. Richards, of Cambridge, Mass. Discussed by the President.

"The Constituents of the Venom of the Rattlesnake," by Prof. John Marshall, of Philadelphia. Discussed by Mr. Joseph Willcox, Prof. William B. Scott and Dr. Marshall.

"Trisulphoxyarsenic Acid," by Prof. LeR<sup>oy</sup> W. McCay, of Princeton.

"The Atomic Weight of Tungsten," by Prof. Edgar F. Smith and Mr. F. F. Exner, of Philadelphia. Discussed by Prof. Barker and Prof. E. J. Houston.

"The Expansion of Algebraic Functions at Singular Points," by Prof. Preston A. Lambert, of Bethlehem, Pa. Introduced by Prof. C. L. Doolittle.

#### AFTERNOON SESSION, 2 P.M.

Vice-President SCOTT in the Chair.

"The Continuum and the Theory of Masses," by Prof. I. J. Schwatt. Introduced by Prof. C. L. Doolittle.

"An Attempt to Correlate the Marine with the Fresh and Brackish Water Mesozoic Formations of the Middle West," by Prof. John B. Hatcher, of Pittsburg, Pa. Discussed by Profs. Osborn, Scott and Heilprin.

"The Miocene Rodentia of Patagonia," by Prof. William B. Scott, of Princeton, N. J. Discussed by Prof. Osborn.

"Recent Advances in Our Knowledge of the Evolution of the Horse," by Prof. Henry F. Osborn, of New York. Discussed by Profs. Conklin, Heilprin, Scott and Mr. Willcox.

"The Yukaghir Language," by Mr. Waldemar Jochelson, of New York. Introduced by Dr. Franz Boas. Discussed by Dr. Franz Boas.

"The Horizontal Plane of the Skull," by Dr. Franz Boas, of New York.

"The Silurian Fauna of Arkansas," by Mr. Gilbert van Ingen. Introduced by Prof. W. B. Scott.

"Palladium," by Mr. Joseph Wharton, of Philadelphia. Discussed by Mr. Willcox and Prof. Baskerville.

#### EVENING SESSION, 8 P.M.

[At the Free Museum of Science and Art, University of Pennsylvania.]

President SMITH in the Chair.

The following paper was read:

"Pompeii and Saint Pierre: An Examination of the Plinian Narration, and Other Studies" (with lantern slide illustrations), by Prof. Angelo Heilprin, of Philadelphia.

#### FRIDAY, APRIL 8.—MORNING SESSION, 10 A.M.

Vice-President BARKER in the Chair.

The following papers were read:

"The Reflex Zenith Tube," by Prof. Charles L. Doolittle, of Philadelphia. Discussed by Prof. Snyder and Dr. Brashear.

"Faint Double Stars," by Mr. Eric Doolittle, of Philadelphia.

"On the Spectra and General Nature of Temporary Stars," by Prof. William W. Campbell, of Mt. Hamilton, Cal. Discussed by Dr. Brashear and Dr. Barker.

"Systems of  $n$  Peripleigmatic Orbits," by Prof. Edgar Odell Lovett, of Princeton. Introduced by Prof. C. L. Doolittle.

"Radium from American Ores," by Prof. A. H. Phillips, of Princeton, N. J. Discussed by Mr. Joseph Wharton and Profs. Barker and Phillips.

## EXECUTIVE SESSION, 12.15 P.M.

President SMITH in the Chair.

The report of the Committee appointed to prepare a plan for the appropriate celebration of the bi-centennial of the birth of Benjamin Franklin was presented, and on motion the Committee was continued with power to carry out the plan.

The pending nominations for membership were read and the Society proceeded to an election.

## AFTERNOON SESSION, 2 P.M.

President SMITH in the Chair.

The Tellers reported that the following candidates had been elected to membership:

*Residents of the United States—*

Maurice Bloomfield, Ph.D., LL.D., Baltimore.

Henry Pickering Bowditch, M.D., LL.D., Sc.D., Jamaica Plains, Mass.

Edward Potts Cheyney, A.M., Philadelphia.

Russell H. Chittenden, Ph.D., New Haven.

Frank Wigglesworth Clarke, S.B., Sc.D., Washington.

John Chalmers DaCosta, M.D., Philadelphia.

Kuno Francke, Ph.D., Cambridge, Mass.

Adolphus W. Greely, U.S.A., Washington.

Preston Albert Lambert, Bethlehem, Pa.

Edgar Odell Lovett, Ph.D., LL.D., Princeton.

Edward Leamington Nichols, Ph.D., Ithaca.

Hon. Theodore Roosevelt, Washington.

Samuel W. Stratton, Washington.

Harvey W. Wiley, A.M., M.D., LL.D., Washington.

*Foreign residents—*

Friedrich Delitzsch, Berlin.

Sir Richard C. Jebb, Cambridge.

Ernest Rutherford, Montreal.

Jakob Heinrich Van't Hoff, Berlin.

Wilhelm Waldeyer, Berlin.

The following papers were read:

"A System of Passenger Car Ventilation," by Dr. Charles B. Dudley, of Altoona, Pa. Discussed by Mr. Willecox, Dr. Marshall and Prof. Heilprin.

"Atmospheric Nucleation," by Prof. Carl Barus, of Providence, R. I. Discussed by Profs. Kraemer, Conklin and Snyder.

"On the Classification of Meteorites," by Dr. Aristides Brezina, of Vienna.

"Doliolum and Salpa," by Prof. William Keith Brooks, of Baltimore. Discussed by Prof. Conklin.

"On the Breeding Habits of the Spade-Foot Toad (*Scaphiopus solitarius*)," by Dr. Charles Conrad Abbott, of Trenton, N. J.

"On the Occurrence of Artifacts Beneath a Deposit of Clay," by Dr. Charles Conrad Abbott, of Trenton, N. J.

"The Organization of the Germ Cells and Its Bearings on Evolution," by Prof. Edwin Grant Conklin, of Philadelphia.

"The Origin and Nature of Color in Plants," by Prof. Henry Kraemer, of Philadelphia.

SATURDAY, APRIL 9.—MORNING SESSION, 10 A.M.

President SMITH in the Chair.

"The Establishment of Game Refuges in the United States Forest Reserves," by Mr. Alden Sampson, of Haverford, Pa. Discussed by Profs. Morse and Hewett, Dr. Brashear and the President.

"The Use of the Relative Pronouns in Standard English Writers," by Prof. Waterman T. Hewett, of Ithaca, N. Y.

Discussed by Dr. Brashear, Prof. Morse, Mr. Yarnall and Prof. Hewett.

"The Effect of the American Revolution Upon the English Colonial System," by Mr. Sydney George Fisher, of Philadelphia. Discussed by Mr. Stuart Wood.

"The Hedonic Postulate," by Prof. Lindley M. Keasbey, of Bryn Mawr, Pa. Discussed by Mr. Stuart Wood, Prof. Doolittle, Mr. Richard Wood and Prof. Keasbey.

"Results of the American Ethnographical Survey," by Prof. Marion D. Learned, of Philadelphia. Discussed by Mr. Rosengarten, Mr. Richard Wood and Mr. R. P. Field.

"Regulation of Color-Signals in Marine and Naval Service," by Dr. Charles A. Oliver, of Philadelphia.

"The Ripening of Thoughts in Common," by Prof. Otis T. Mason, of Washington.

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## THE RÔLE OF CARBON.

BY ALBERT B. PRESCOTT.

(*Read April 7, 1904.*)

It may be said of any one of the chemical elements that it acts a part of its own in the formation of matter and the manifestation of energy in the world. A chemical element taken as it is, aside from questions of its genesis and its decay, stands out before exact measurement as an innate individual factor in the production of things throughout the universe. Whatever there is now being brought to light between matter and the ether or the electrons, at all events the chemical elements taken in their atomic quantities are the present facts upon which further inquiry must rest its advances.

The behavior of an element is an experimental constant, however progressive may be the theories by means of which men of science may pursue their studies. The present is for some reasons a time profitable for us to recount certain of the salient characteristics of that chemical element named at the head of this brief paper.

The registration of carbon compounds in M. M. Richter's *Lexicon*, amounting to 80,000 in the year 1900 and since increased by